

Key

p558 30-51x3 28, 54, 58, 59

30.

$$e^{-x} = 5$$

$$-x = \ln 5$$

33.

$$\ln 5.2 = x$$

$$e^x = 5.2$$

36.

$$\ln e^{-4x}$$

$$-4x$$

39.

$$2e^x - 1 = 0$$

$$2e^x = 1$$

$$e^x = \frac{1}{2}$$

$$x = \ln \frac{1}{2}$$

$$x = -.6931$$

42.

$$-3e^{4x} + 11 = 2$$

$$-3e^{4x} = -9$$

$$e^{4x} = 3$$

$$4x = \ln 3$$

$$x = .2747$$

45.

$$e^{-2x} \leq 7$$

$$-2x \leq \ln 7$$

$$x \geq -.9730$$

48.

$$\ln(x+1) = 1$$

$$e^1 = x+1$$

$$1.7183 = x$$

51.

$$\ln 4x + \ln x = 9$$

$$\ln 4x^2 = 9$$

$$e^9 = 4x^2$$

$$\sqrt{\frac{e^9}{4}} = x$$

$$\pm 45.0086 = x$$

$$45.0086 = x$$

28.

$$A = Pe^{rt}$$

$$A = 150e^{.04(5)}$$

$$A = 183.21$$

54.

$$200 = 100e^{.036t}$$

$$2 = e^{.036t}$$

$$\ln 2 = .036t$$

$$19.8 \text{ yrs} = t$$

56.

$$P = 6e^{.02t}$$

$$= 6e^{.02(10)}$$

$$7.33 \text{ billion}$$

59.

$$18 = 6e^{.02t}$$

$$3 = e^{.02t}$$

$$\ln 3 = .02t$$

$$54.9 \text{ yrs} = t$$